Sporadischer Neustart von WPC-Geräten.

Leon, der bekannte Experte aus Belgien, hat einen originellen „quick'n dirty" Ansatz zur Lösung des Problems veröffentlicht.
Eine durchaus erwägenswerte Alternative:

Sudden reset on WPC machines

Most pinball fans know the problem;

You just push the flipper button or mostly both buttons and the machine resets.When consulting a forum or a technician all have the same advise replace BR2 rectifier bridge and if that is not enought replace the 18.000µF capacitor C5 both on the driver board.

Here we need to take out the driver board to have acces to both parts and solder on new ones, meaning disconnect all connectors , many pinball-fans hesitate to do this and are forced to ask someone to do this intervention.

Hereby you will find a solution where the driver board stay in place, only the CPU board must be removed . 10X more easy to do !!

Are these parts(rectifier & capacitor) used or bad? NO !!! It's the concept of machine, the 5volt power supply is not well balanced, the input voltage at the rectifier bridge is a bit low , with aging the bridge will lose perhaps 0,1 to 0,2 volts of his output , but that is already enought to trip the SEVERE control IC that monitors the 5 volt supply.(IC 10 on the CPU board) When the 5 volts drops under 4,65 volts the machine resets, this happens when for a millisecond the voltage drops .... The same can happen when the capacitor ages , when connector J101 is somewhat lose, or the connection at the transformator are not well inserted, or when the tension of the house outlet drops a bit.

Many reasons to have the nasty RESET effect.

It's IC 10 on the CPU board that monitors the +5 volt . At start up the IC has no output (o volts) and the pull-up resistor R22 that normally holds the pin 51 of the ASIC " high"is neutralised pin 51 of the ASIC being at 0 the machine resets afther a few milliseconds when the +5 is there the output pin goes high and the ASIC starts up.= Machine starts up. When during game play the tension applyed on the IC drops under 4,65 the output becomes low and the ASIC resets = machine resets.

The solution is to feed the IC (U10) with a tension that does not risk to drop under 4,65 volts. As simple as that.

After many try-out at last i found that it's really simple! The tension behind the 5 volt regulator LM323 is only buffered with a 100µF capacitor (C4) by sudden drops of the input tension this is not enought to compensate and hold the +5 a while " on track" ! We we just add a bigger capacitor (15.000µF) behind the LM323 the tension is more stabilised and the problem does not longer occours.

In this solution i do not touch the output of the control IC, only the input tension is monitored. I leave all security given by the control IC intact.

Who do we proceed?

Photo's will say more then words.

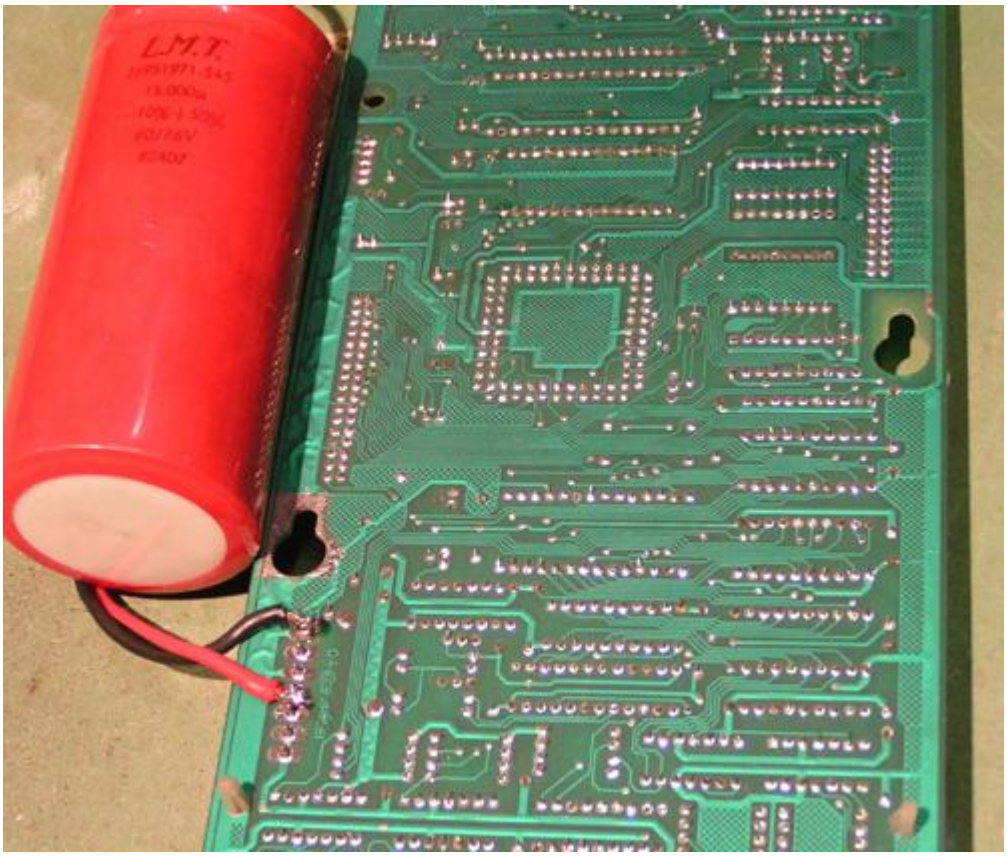
What do you need ?

One capacitor of 15.000µF , i used a bigger type because i had some of these in my junk-box, but you can buy smaller ones..

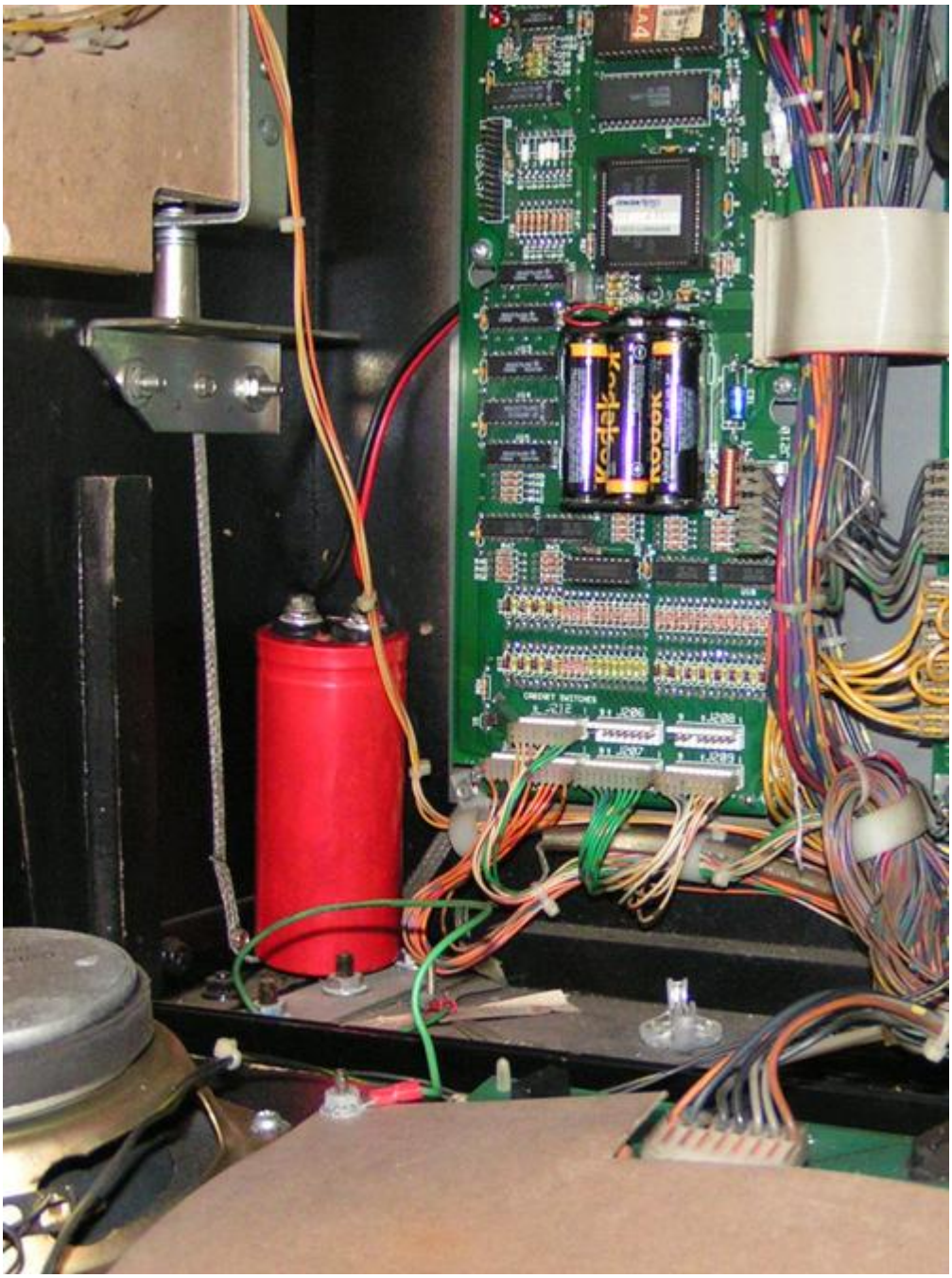
Werk wijze:

Solder two wires at the capacitor , long enought to reach from the left corner of the backbox to the connector J210 of the CPU board , about 10 inches.

Capacitor ready.



Take out the CPU board ,at the solderside of the board solder the negative lead of the capacitor at pin 1 and the positive lead at pin4/5 of connector J210, and done!!



In the left corner of the backbox we can easely install the capacitor.

Why connect the exta capacitor on the CPU board , well it's easy to take out the cpu board, and the effect of the extra capacitor is maximum close to IC10 the watchdog IC.

The machine modified was a Indiana Jones , done on 11 /01/2008. The 5 volts cirquitry still runs fine. The day the machine goes in reset again or will fail in the 5 volt supply i will report that here on demand of some interested pinball-fans who are not convinced of the mod, and more like the classic repair , replacing BR2 and C5 andsometimes the supply connector J101.